

BALUN TRANSFORMER FOR A SATELLITE TV TUNER

ABSTRACT

The invention is a balun transformer that converts a single-ended (or unbalanced) signal to a differential (or balanced) signal. The balun is a printed metal pattern on a circuit board in conjunction with several low cost chip capacitors and a low cost chip inductor. The balun transformer is a modified Marchand balun that is implemented using printed transmission lines. The balun has a plurality of coupled transmission lines to improve tolerances to variations in PC board fabrication. To make the balun compact, it is electrically lengthened through the use of capacitive loading, which reduces the required physical size. Additionally, the capacitors increase the bandwidth due to the resonant interaction between the short inductive balun and the capacitors that are placed in series with the input and the output.